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Finding New Power in the Wind, the Earth, and the Sun: A Survey of the Regulation of Alternative Energy Generated on American Indian Reservations int he United Sates and First nation Reserves in Canada Note

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FINDING NEW POWER IN THE WIND, THE EARTH, AND THE SUN: A SURVEY OF THE REGULATION OF ALTERNATIVE ENERGY GENERATED ON AMERICAN INDIAN RESERVATIONS IN THE UNITED STATES AND FIRST NATION RESERVES IN CANADA

JESSICA A. R. HAMILTON

Investment in renewable energy resources is becoming increasingly essential for the governments of both the United States and Canada as they search for viable alternatives to traditional, and often foreign-controlled, energy resources. The potential contributions of American Indians and First Nations in the energy sector have been long undervalued and hitherto largely untapped, despite their influence and control over huge areas of undeveloped land perfectly suited to multiple forms of renewable energy—including hydroelectric, solar, wind generation, and geothermal energy. Due to the unique legal history of American Indian Tribes and First Nations, however, any renewable energy project on their lands is potentially subject to a confusing patchwork of jurisdictional restrictions and legal requirements which threaten to impede development and investment efforts.

This Note provides a valuable overview of legal impediments to renewable energy development from the perspective of Tribes and First Nations, private investors, and local and federal governments. Comparative law serves to highlight the similar and diverging successes and failures to establish renewable energy projects on Tribal and First Nation lands under the current regulatory framework of the American and Canadian systems. Based on a critical analysis of governmental incentives and key legal considerations, this Note offers a road map for navigating the current jurisdictional detours and highlights the failures that must be addressed by future legislation.

NOTE CONTENTS

FINDING NEW POWER IN THE WIND, THE EARTH, AND THE SUN: A SURVEY OF THE REGULATION OF ALTERNATIVE ENERGY GENERATED ON AMERICAN INDIAN RESERVATIONS IN THE UNITED STATES AND FIRST NATION RESERVES IN CANADA

JESSICA A. R. HAMILTON*

Our children and grandchildren all stand to benefit from the work being done today. I encourage all of you to take advantage of the opportunities presented by this week's event: learn more about renewable energy. Share ideas. . . . Explore your options. All Canadians prosper when First Nations prosper.[1]

I. INTRODUCTION

American Indian Tribes in the United States and First Nations in Canada control vast renewable power potential, from the sweeping winds of the Canadian Prairies to fierce sun of the southwestern U.S. desert. In the United States alone, Indian Country[2] contains an estimated ten percent of all of the nation's potential renewable energy resources, despite being only five percent of the total land area.[3] The National Renewable Energy Laboratory estimates that the potential for wind energy on Indian lands in the contiguous forty-eight states could be fourteen percent of current U.S. total annual energy generation,[4] while the potential for solar energy is

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* Mount Allison University, B.A. 2008; University of Connecticut School of Law, Juris Doctor Candidate 2012. I wish to thank Professor Richard Pomp for first introducing me to the topic of American Indian law, Professor Bethany Berger for her invaluable guidance and assistance on this subject, and Professor Dwight Merriam for all his teachings on the importance of good editing, research, and writing. I am especially grateful to my husband, Cruger, for his endless patience and encouragement throughout the writing process, and to my parents back home in Canada for their enduring support.

[1] The Honourable John Duncan, Address, *Alternative Energy for BC First Nations Gathering*, Vancouver Sheraton Wall Centre (Feb. 18, 2011), *available at* http://www.aadnc-aandc.gc.ca/eng/1306259440696.

[2] The traditional definition of Indian Country in the United States encompasses "all land within the limits of any Indian reservation under the jurisdiction of the United States Government" as well as all dependent Indian communities and Indian allotments within the borders of the United States. 18 U.S.C. § 1151(a) (2006). For purposes of this Note, references to Indian County refer exclusively to Indian reservations under the jurisdiction of the United States government.

[3] DOUGLAS C. MACCOURT, RENEWABLE ENERGY DEVELOPMENT IN INDIAN COUNTRY: A HANDBOOK FOR TRIBES 1 (2010).

[4] *See id.* at 1–2 (stating that this is the equivalent of 535 billion kilowatt hours per year ("kWh/year") of wind energy).

almost five times the total electric generation in the United States in 2004.[5] Furthermore, over one hundred reservations have significant biomass potential, with many reservations located in key transmission and transportation corridors throughout the country.[6] In Canada, the majority of the nation's untapped hydro capacities, as well a large percentage of new potential electricity generation projects, are located on First Nation traditional territory and on Crown lands requiring First Nation approval.[7] The development of these resources could help Tribes and First Nations realize their historical desire for sovereignty, sustainability, and financial security, while simultaneously providing rural electrification and economic development. Yet despite the enormous energy potential of these lands, the development of these resources by American Indian Tribes and First Nations is still in its infancy.

American Indian Reservations and First Nations Reserves are unique jurisdictional enclaves in which both federal and tribal/aboriginal laws may apply. These laws govern leases, easements, and other agreements for the use of lands within the reservation.[8] Many government resources are already available to Tribes seeking to enter the alternative energy sector: the Tribal Energy Program of the United States Department of Energy ("DOE") helped fund ninety-three tribal energy projects between 2002 and 2008,[9] and the Ontario provincial government established the Aboriginal Energy Partnerships Program ("AEPP") in April 2010 to increase and support renewable energy technologies to meet local demand while facilitating local Aboriginal involvement in these projects.[10] Developers are increasingly eager to unlock the energy potential on these lands; however, given the dark and frequently exploitative history surrounding First Nation and American Indian lands, it is imperative that the development of alternative energy generation projects is to the financial and environmental benefit of all of the parties involved.

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[5] *See id.* at 2 (reporting that there is the potential for 17,600 billion kWh/year of solar energy).

[6] Bethany C. Sullivan, *Changing Winds: Reconfiguring the Legal Framework for Renewable-Energy Development in Indian Country*, 52 ARIZ. L. REV. 823, 825–26 (2010).

[7] INTERNATIONAL INDIGENOUS SUMMIT ON ENERGY & MINING, POWERING PROSPERITY: WORKING TO BUILD ON THE POTENTIAL OF ENERGY PROJECTS & PARTNERSHIPS 8, 11 (Assembly of First Nations ed., 2011), *available at* http://www.afn.ca/uploads/files/powering_prosperity.pdf.

[8] *See* Gary R. Barnum et al., *Tribal Laws and Land Issues*, *in* LEX HELIUS: THE LAW OF SOLAR ENERGY 73, 73–74 (3d ed. 2011) (listing examples of various barriers and benefits to alternative energy generators on tribal lands).

[9] *See Energy Efficiency & Renewable Energy: Tribal Energy Program*, U.S. DEP'T OF ENERGY, http://apps1.eere.energy.gov/tribalenergy/funding_history.cfm (last updated Nov. 17, 2011) (providing information about Native American renewable energy and energy efficiency projects that have been funded by the DOE, including case studies, information on business opportunities, and project financing, and other resources to help Tribes with their energy projects).

[10] *Aboriginal Energy Partnerships Program*, ONTARIO POWER AUTH., http://www.powerauthority.on.ca/first-nations-metis-relations/aboriginal-energy-partnership-program (last visited Nov. 30, 2011).

Future alternative energy projects on American Indian Reservations and First Nation Reserves would be subject to a series of multifaceted sovereignty issues, including American Indian Tribe/First Nation's regulatory control over their lands, provincial and state laws, and federal environmental, energy, and tax laws.[11] As a result, substantial educational efforts on both sides of the border are still required to assist investors, American Indians and First Nations, and all levels of government in understanding the feasibility of the renewable energy opportunities available to them and the potential legal hurdles associated with taking advantage of these opportunities. This Note addresses the sparse legal scholarship on these issues by providing a consolidated overview and examination of the opportunities, obstacles, and successes surrounding the regulation of renewable energy generation facilities on Tribal and First Nation lands. It also compares and critiques the government initiatives, tax credits, partnership programs, and other incentives available in both nations. The past decade has brought a renewed focus to the establishment of Tribal and First Nation self-determination. Successful development of renewable energy offers an exciting new way for American Indian Tribes and First Nations to create the infrastructure and capacity necessary for economic independence. Learning from past renewable energy projects on either side of the border will significantly aid in understanding what the future holds for investors, governments, and the Tribes and First Nations.

II. TERMINOLOGY

Given the similar, but nonetheless divergent, histories of Canada and the United States, there are several uniquely Canadian and American terms that have become central in these types of discussions. "American Indian Tribes," in American parlance, are referred to as "First Nations" or "Aboriginal Peoples" in Canada, likewise "American Indian Reservations/Indian reservations" and "Indian Country" are known as "First Nations Reserves" or simply "reserves" in Canada. From a governance standpoint, "American Indian Tribes" or "Tribes" are referred to as "First Nations," "First Nations Governments," or "Bands" in Canada. Discussions involving the practices of a single-country shall therefore use country-specific terms, and general policy references shall incorporate both politically correct terms.[12]

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[11] Barnum et al., *supra* note 7, at 74–75.

[12] Furthermore, the correct Canadian terminology for Aboriginal Peoples in Canada is constantly changing. *See* INDIAN AND N. AFFAIRS CANADA, WORDS FIRST: AN EVOLVING TERMINOLOGY RELATING TO ABORIGINAL PEOPLES IN CANADA (2002) 4, *available at* http://dsp-psd.pwgsc.gc.ca/Collection/R2-236-2002E.pdf (providing a thorough list of terminology which writers may encounter, though advising readers that provisions of the Indian Act, its regulations, and other

III. HISTORICAL FEDERAL-TRIBAL RELATIONS

Prior to the creation of the United States and Canada, North America was governed by hundreds of Tribes and First Nations, forming a series of distinctive cultural areas spread out across the continent.[13] With the formation of the United States, and subsequently Canada, these areas were brought into the new countries through a "colonial process that was partly negotiated and partly imposed."[14] This process resulted in Canada and the United States adopting two different approaches towards integrating Tribes and First Nations into their legal systems. The differing treatment of the legal rights afforded to Tribes and First Nations plays a critical role in the allocation of responsibility in the renewable energy generation sector.

A. *United States: Domestic, Dependent Nations*

The United States treats American Indian Tribes as "domestic dependent nation[s],"[15] with the source of the Tribe's ability to govern their people and their land stemming in large part from Article I, Section 8 of the United States Constitution.[16] Principles of international law, treaties, federal statutes and regulations, executive orders, and judicial opinions have also played a significant role in establishing the legal status of the Tribes.[17] Due to the negligible role of state law in the daily affairs of the Tribes and the individualistic (and specific) nature of many of these treaties, executive orders, and judicial opinions, each Tribe has a unique relationship with the United States, and the law affecting one Tribe may not necessarily extend to all Tribes.[18] In general, however, federally-

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federal statutes and their interpretations by the courts may take precedence over anything contained in the list).

[13] *See* FELIX COHEN, COHEN'S HANDBOOK OF FEDERAL INDIAN LAW 1 (Nell Jessup Newton et al. eds., 2005); Donald J. Ballas, *Historical Geography and American Indian Development*, *in* A CULTURAL GEOGRAPHY OF NORTH AMERICAN INDIANS 15, 18–20 (Thomas E. Ross & Tyrel G. Moore eds., 1987).

[14] COHEN, *supra* note 12, at 1; *see also* Jessie Sutherland, *Colonialism, Crime, and Dispute Resolution: A Critical Analysis of Canada's Aboriginal Justice Strategy*, MEDIATE.COM (Oct. 2002), http://www.mediate.com/articles/sutherlandJ.cfm (discussing the integration of First Nations into the Canadian legal system).

[15] COHEN, *supra* note 12, § 2.02(2) (quoting Cherokee Nation v. Georgia, 30 U.S. 1, 17 (1831), one of the seminal Indian Law cases establishing the role of Indian Tribes). "[Tribes] are denominated domestic because they are within the United States and dependent because they are subject to federal power." *Id.* at 1.

[16] U.S. CONST. art. I, § 8 ("The Congress shall have Power to . . . regulate Commerce . . . with the Indian Tribes . . . .").

[17] *See* COHEN, *supra* note 12, § 2.01(1) (elaborating on the recognition in the Constitution and through treaties, as well as the various forms of recognition Indian law receives via federal statutes, regulations, judicial opinions, and executive orders).

[18] *Id.* § 2.01(2). The historical context of these statutes, treaties, and cases is extremely important in the field of Indian law, as it provides the background for contemporary public policy and legal

recognized tribal status[19] confers some of the powers of a sovereign state, grants broad federal powers and internal responsibilities over Indian affairs, and limits state authority in Indian affairs.[20]

The Tribe's power as a sovereign further derives from the inherent powers of limited sovereignty, which are only diminished by a treaty, statute, or federal common law, which creates a government-to-government relationship with the United States.[21] Congress's power to regulate American Indian affairs, therefore, is subject to constitutional restraints and the *trust relationship*, which includes canons of construction for all treaties and statutes affecting Tribes that presume that the Tribes retain their pre-existing sovereignty and property rights.[22] Congress and the federal courts have additionally granted states the power to regulate persons or conduct inside Indian country. In the absence of laws such as Public Law 280,[23]—which granted a limited number of states criminal and civil adjudicatory jurisdiction over Indians— this power generally only reaches activity by non-Indians.[24] While Indian law has historically swung between the recognition of tribal sovereignty and various efforts by the federal government to limit or even abolish tribal sovereignty,[25] for the past several decades, federal Indian policy has nurtured the development of the concept of tribal self-determination. This represents a distinct shift away from earlier efforts by the federal government to exert unilateral control and management over tribal resources and services.[26]

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conflict between the Tribes and the United States. *Id.* § 1.01. For a more in-depth analysis of the history and background of Federal Indian Policy, see *id.* § 1.01–1.07.

[19] Only those Tribes recognized by the federal government via the Bureau of Indian Affairs ("BIA") are granted privileges and immunities "by virtue of their government-to-government relationship with the United States," which make them eligible for funding and services from the BIA. *See* Indian Entities Recognized and Eligible To Receive Services From the United States Bureau of Indian Affairs, 75 Fed. Reg. 60,810 (Oct. 1, 2010) (listing the 564 Tribes currently recognized by the federal government). As of March 2012, there are 566 Tribes recognized by the Bureau of Indian Affairs and the federal government. *See* Bureau of Indian Affairs, *What We Do*, U.S. DEP'T OF THE INTERIOR, http://www.bia.gov/WhatWeDo/index.htm (last visited Feb. 7, 2012).

[20] COHEN, *supra* note 12, § 6.01.

[21] *See id.* § 2.01 (describing general concepts of sovereignty and the extent of power that the federal government may exert over Tribes).

[22] *See id.* § 5.04 (discussing the development of the trust responsibility doctrine).

[23] Act of Aug. 15, 1953, ch. 505. Pub. L. No. 83-280, 67 Stat. 588 (codified in scattered sections of 18, 25, & 28 U.S.C.).

[24] COHEN, *supra* note 12, § 6.04(3)(a); *see also* ALBERTO R. GONZALES ET AL., NAT'L INST. OF JUSTICE, PUBLIC LAW 280 AND LAW ENFORCEMENT IN INDIAN COUNTRY: RESEARCH PRIORITIES 1–6 (2005) (describing the justification for P.L. 280 and examining its success in the six "mandatory" states where it has been enacted).

[25] COHEN, *supra* note 12, § 5.04.

[26] Sullivan, *supra* note 6, at 827–28; *see also* Indian Self-Determination and Education Assistance Act of 1975, 25 U.S.C. § 450(a)(l) (2006) ("[T]he prolonged Federal domination of Indian service programs has served to retard rather than enhance the progress of Indian people and their communities by depriving Indians of the full opportunity to develop leadership skills crucial to the realization of

There are currently 566 federally-recognized Tribal governments spread out over thirty-six states, and the United States government holds approximately fifty-five million acres of land in trust for American Indians, Alaska Natives, and Indian Tribes,[27] with an additional forty-four million acres set aside for aid for Alaska Natives in the Alaska Native Claims Settlement Act of 1971.[28] The economic development of this land has driven the last three decades of Indian policy, though in recent years there has been an increased focus on the protection of the environment and more responsible and efficient utilization of the natural resources present on these reservations.[29] In particular, the Presidential Commission on Indian Reservation Economies, created by President Reagan's Executive Order 12401,[30] reaffirmed the "importance of encouraging individual Indians to enter the business world; the need for tribes to act to promote business development on reservations by Indian and non-Indian entrepreneurs; and the importance of extending to tribal governments the regulatory and financial incentives available to other governments."[31]

B. *Canada: A Slow Evolution of First Nation Government*

First Nation law in Canada is less comprehensive than American Indian law in the United States because the Canadian Constitution recognizes three culturally and geographically distinct groups of Aboriginal people: Indians (commonly referred to as First Nations), Métis, and Inuit. Section 35, subsection 1 of the Canadian Constitution mandates the reconciliation of "pre-existing Aboriginal sovereignty with assumed Crown sovereignty," and imposes a duty of honorable consultation and accommodation on the Crown.[32] The Canadian Constitution also provides

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self-government, and has denied to the Indian people an effective voice in the planning and implementation of programs for the benefit of Indians which are responsive to the true needs of Indian communities . . . .").

[27] Bureau of Indian Affairs, *supra* note 19.

[28] Alaska Native Claims Settlement Act, 43 U.S.C. §§ 1601–24 (2006); *Alaska National Interest Lands Conservation Act*, NAT'L PARKS CONSERVATION ASS'N (Oct. 27, 2011), http://www.npca.org/news/media-center/fact-sheets/anilca.html.

[29] COHEN, *supra* note 12, § 1.07.

[30] Exec. Order. No. 12401, 48 Fed. Reg. 2309 (Jan. 14, 1983).

[31] Cohen, *supra* note 12, § 1.07 (quoting PRESIDENTIAL COMMISSION ON INDIAN RESERVATION ECONOMIES, REPORT AND RECOMMENDATIONS TO THE PRESIDENT OF THE UNITED STATES 9 (1984)). This Executive Order was superseded a year later, in 1985, by Executive Order 12534, which terminated the Presidential Commission on Indian Reservation Economies. *See Ronald Reagan 1985 Executive Orders Disposition Tables*, NAT'L ARCHIVES, http://www.archives.gov/federal-register/executive-orders/1985.html (last visited Nov. 30, 2011) (stating that Executive Order 12534 revoked the committee created by Executive Order 12401).

[32] *See* Haida Nation v. British Columbia (Minister of Forests), [2004] 3 S.C.R. 511, 20 (Can.) (interpreting the application and interpretation of the Constitution Act, 1867, 31 Vict., c. 3 (U.K.); Constitution Act, 1982, *being* Schedule B to the Canada Act, 1982, c. 30 (U.K.) as applied to Native Peoples).

federal Parliament full legislative jurisdiction over "Indians, and [l]ands reserved for the Indians."[33] In contrast to that delegation of power, the Constitution grants the provinces legislative jurisdiction over the lands and natural resources that fall within its boundaries, thereby making Indian reserves "islands of federal jurisdiction within seas of provincial jurisdiction."[34] A First Nation reserve is therefore provincial Crown land that has been put under federal control and dedicated to a specific purpose; therefore, provincial and municipal laws and regulations generally do not apply.[35]

The 1876 Indian Act, one of the most frequently-amended pieces of legislation in Canadian history, establishes the decision-making authority over First Nation reserves.[36] Authority for major decisions is generally vested in the Minister of the federal Department of Indian Affairs. Band councils[37] are empowered to make certain, limited decisions, such as allowing Band members to take possession of several tracts on the reserve, but even that action is subject to override by the Minister.[38] Decision-making authority is thus firmly divided between two levels of government: the band council on the reserve and the Indian Affairs bureaucracy in Ottawa, with Indian Affairs retaining the right to overrule almost everything that local authorities in the band might want to do with land on the reserve, including establishing alternative energy generation facilities.[39]

During the last several decades, Canada has experienced an accelerating trend towards more extensive self-determination on the part of First Nations people, including the much-celebrated creation of Nunavut, Canada's newest territory, with Inuit self-rule and control over their own institutions.[40] Additional agreements have been established with the

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[33] Constitution Act, 1867, 31 Vict., c. 3 (U.K.); Constitution Act, 1982, *being* Schedule B to the Canada Act, 1982, c. 30 (U.K.).

[34] TOM FLANAGAN ET AL., BEYOND THE INDIAN ACT: RESTORING ABORIGINAL PROPERTY RIGHTS 27 (2010).

[35] Ronnie Campbell, *Opening Statement to the Standing Committee on Aboriginal Affairs and Northern Development*, OFFICE OF THE AUDITOR GENERAL OF CANADA (Dec. 13, 2011), http://www.oag-bvg.gc.ca/internet/English/osh_20111213_e_36081.html.

[36] It was amended nearly every year between 1876 and 1927 to address concerns with the "assimilation" and "civilization" of First Nations, becoming increasingly restrictive, and imposing ever-greater controls on the lives of First Nations. *First Nations in Canada*, ABORIGINAL AFFAIRS & N. DEV. CANADA, http://www.aadnc-aandc.gc.ca/eng/1307460755710 (last visited Feb. 9, 2012).

[37] A Band Council is the "[g]overning or administrative body of a Band, elected according to procedures laid out in the Indian Act. They may either be an elected or custom council under the Act. The councillors [sic] are elected by eligible members and serve a two-year term." *First Nations and Métis Relations: Glossary*, GOV'T OF SASKATCHEWAN, http://www.fnmr.gov.sk.ca/community/glossary/ (last visited Feb. 9, 2012).

[38] FLANAGAN, *supra* note 32, at 28.

[39] *Id.* at 28–29.

[40] *See Creation of Nunavut*, CANADIAN BROAD. CORP. DIGITAL ARCHIVES, http://archives.cbc.ca/politics/provincial_territorial_politics/topics/108/ (last visited Feb. 9, 2012).

Sechelt and Nisga'a Bands, granting them a degree of communal self-government and control over natural resources in exchange for paying certain provincial and federal taxes.[41] Furthermore, the unbalanced relationship between Indian Affairs and the local band councils has been mitigated somewhat by the legal recognition of property rights for individuals on Indian reserves, which can be exercised under certain conditions. These rights include customary land rights, certificates of possession, and leases.[42] How this may impact the development of renewable energy projects has yet to be formally established.

IV. THE POTENTIAL FOR RENEWABLE ENERGY ON RESERVES AND RESERVATIONS

Given the vast area that reserves and reservations cover, the natural geography available to most Tribes and First Nations has the potential to permit them to take advantage of multiple forms of alternative power. As the demand for electricity continues to grow, an investment in renewable energy represents a valuable contribution towards the maintenance of a stable, electrified community.[43] The development of renewable energy on reservations has the potential to create a substantial increase in the standard of living for tribal members: it can create jobs, raise revenue for the Tribe, and help address the rural electrification issues that many remote towns have been struggling with due to the lack of reliable electric service.[44] The following five forms of alternative energy are the most likely to be successful on a Tribal reservation or First Nation reserve. Importantly, the associated technological, financial, and geographic considerations must be taken into account. That is, due to the highly site-specific nature of renewable energy and the frequent additional legal and financial restrictions, and considerations associated with land use on reservations, individual site analysis generally must be performed before undertaking any of the renewable energy projects suggested here.[45]

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[41] Nisga'a Final Agreement Act, S.C. 2000, c. 7 (Can.); Sechelt Indian Band Self-Government Act, S.C. 1986, c. 27 (Can.).

[42] FLANAGAN, *supra* note 32, at 29.

[43] It is anticipated that energy shall increase in both value and demand, making it an exceptionally valuable commodity. *See* U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2010 59 fig.47 (2010), *available at* http://www.eia.gov/oiaf/aeo/pdf/trend_2.pdf (projecting commercial energy use will increase through 2035).

[44] GLOBAL ENERGY NETWORK INST., RENEWABLE ENERGY ON TRIBAL LANDS 4, *available at* www.geni.org/globalenergy/research/renewable-energy-on-tribal-lands/Renewable-Energy-on-Tribal-Lands.pdf (last visited Feb. 12, 2012).

[45] ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, ENERGY CONSUMPTION AND RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS 11 (2000), *available at* http://www.eia.gov/cneaf/solar.renewables/ilands/ilands.pdf [hereinafter RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS]. Land use restrictions are further discussed at *infra* Section VII.

A. *Concentrating Solar Power and Photovoltaics*

Solar energy can be converted into electricity by one of two means, both of which can be readily implemented on reserves and reservations. The first is concentrating solar power technology, which converts solar energy into electricity via reflective surfaces to concentrate sunlight onto a receiver at 80 to 3,000 times the normal, un-refracted power, thereby producing extremely high temperatures, which are used to create steam to drive a turbine and generate electrical power.[46] These systems require direct radiation from the sun and must always point directly at the sun to track it as it moves across the sky, thereby limiting its use to sunny, arid locations such as those found in the southwest U.S. desert.[47] This type of technology has not been as popular in Canada due to the nation's more temperate and overcast climate. The Canadian federal government, however, has begun to explore the feasibility of installing concentrating solar power generators in Western Canada, where there are high direct-beam solar resources in the summer.[48]

Due to the cost of operating and maintaining concentrated solar power systems, as well as economies of scale, these systems remain significantly more expensive to construct and maintain than other renewable energy sources.[49] As a result, regions that possess higher levels of solar insolation, a measure of solar radiation on a given surface area at a given time, are more economically favorable due to the higher capacity factors that can be achieved, with a degree of 6–8 $kWH/m^2/day$ of solar insolation recommended for optimal performance.[50] This sufficient degree of isolation is available on eighty-three reservations in the United States, making these locations ideal bases, geographically, for establishing concentrating solar power systems.[51] While no similar studies on solar isolation requirements have been conducted in Canada, the recent success of a concentrating solar power system in Medicine Hat, Alberta[52] suggests

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[46] *Guide to Tribal Energy Development: Concentrating Solar Power Systems*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/solar_concentrators.html (last updated Jun. 18, 2007) [hereinafter *DOE Guide to Tribal Energy Development*]; *see also* PAUL KOMOR, WIND AND SOLAR ELECTRICITY: CHALLENGES AND OPPORTUNITIES 11 (2009), *available at* http://www.c2es.org/docUploads/wind-solar-electricity-report.pdf (discussing concentrated solar power).

[47] KOMOR, *supra* note 44, at 11; *DOE Guide to Tribal Energy Development*, *supra* note 44.

[48] *Renewables: Solar Thermal*, NATURAL RESOURCES CANADA (July 5, 2010), http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/eng/renewables/solar_thermal.html.

[49] *DOE Guide to Tribal Energy Development: Concentrating Solar Power Systems*, *supra* note 44; *see also* KOMOR, *supra* note 44, at 6 tbl.1 (showing cost of wind and solar energy).

[50] RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 43, at 30.

[51] *Id.*

[52] *See Alberta to House a Canadian Renewable Energy First*, GOV'T OF ALBERTA (Nov. 10, 2010), http://alberta.ca/home/NewsFrame.cfm?ReleaseID=/acn/201011/29477371B1EE3-ED7A-094C-

that the more expansive, remote, western First Nations could be equally well-suited to host high capacity concentrated solar power systems.

Photovoltaic solar power systems, which convert sunlight directly into electricity through solar cells, are the other prominent form of solar technology.[53] These cells are made of a semiconducting material that causes solar energy to "knock[] electrons loose from their atoms," and allows the electrons to flow through the special material to produce electricity.[54] Hundreds of these photovoltaic cells can easily be arranged into a single panel, which typically produces eight to ten watts per square foot of solar panel area and can then be mounted either facing south on a fixed structure or on a mechanized tracking device that follows the sun to ensure maximum solar exposure.[55] An entire household can be powered by ten to twenty of these panels, and they can be interconnected to form a single photovoltaic system to provide the electricity for a large electric utility, industrial project, or even the daily residential electricity requirements of a reserve or reservation.[56] It is therefore an ideal resource for isolated Reserves and Reservations where it is too expensive to extend power lines, or where they would otherwise be dependent on expensive and dirty diesel, or extraction-intensive natural gas, generators.[57] While concentrating solar power systems are extremely location-dependent, photovoltaics represent one of the most efficient ways of providing electricity to remote reserves and reservations.[58] The solar energy harnessed by both of these alternative energy resources is abundant and technically limitless, however, it only produces energy during the day and producing a profitable generation of energy is extremely dependent on the weather.[59]

E1C773C419D76200.html (describing a pilot project in Medicine Hat that will show the potential use of solar energy).

[53] KOMOR, *supra* note 44, at 9–11.

[54] *Guide to Tribal Energy Development: Solar Cells and Photovoltaic Arrays*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/pv_solar_cells.html (last updated Jun. 18, 2007).

[55] *Id.*

[56] *See id.* ("About 10 to 20 PV arrays can provide enough power for a typical U.S. household, although some tribal residences may use less power.").

[57] *See* KOMOR, *supra* note 44, at 5 ("[U]tility-scale wind and solar power plants are often located more remotely than fossil-fueled plants.").

[58] *See, e.g.*, SOLAR POWERED INDEPENDENCE: HELPING A COMMUNITY DEMONSTRATE OFF-GRID ENERGY CAPABILITIES, DAY4ENERGY, *available at* http://www.day4energy.com/wp-content/uploads/Case-Study-Tsouke_Final.pdf (last visited Feb. 6, 2012) (providing a case study of the implantation of photovoltaics in the T'Sou-ke Nation, a remote First Nations community located at the end of Vancouver Island, British Columbia).

[59] *See* PAUL DENHOLM ET AL., NAT'L RENEWABLE ENERGY LAB., THE ROLE OF ENERGY STORAGE WITH RENEWABLE ELECTRICITY GENERATION 23–33 (2010), *available at* www.nrel.gov/analysis/pdfs/47187.pdf (explaining the natural and technical limiting factors for integrating wind and solar energy).

B. *Wind Turbines and Farms*

To capture the kinetic energy in wind, large wind turbines are constructed with propeller-like blades, which, when rotated by the wind, spin a generator to produce electricity.[60] Wind energy is the most common renewable energy that is currently in place on many reservations, due in large part to how inexpensive it is to generate in bulk.[61] In America, these wind resources are focused primarily around the coastal regions and the Midwest.[62] This means that the Tribes of the Great Plains have access to some of the greatest wind resources in the nation, with pockets of potential strong wind resources scattered near other reservations.[63]

Wind resources can, however, vary significantly based on localized topographical and meteorological conditions. Consequently, extensive mapping of resources must be conducted in order to properly determine the available wind potential.[64] Frequently, due to a lack of financial and technological resources, Tribes struggled to accurately predict future profits due to the variation in wind energy classifications based on strength and wind generating capacity (also commonly known as "wind power classes"), which are important to investors.[65] In the United States, the DOE established a Wind Anemometer Loan Program to allow Tribes to measure the strength of the winds before investing in wind turbines; however, the program is restricted to Tribes already able to "correctly install, maintain and take down the anemometer; have a realistic project planned; [and] agree to swap the data cards in the anemometer on a

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[60] *See Guide to Tribal Energy Development: Wind Turbines*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/wind_turbines.html (last updated Nov. 22, 2011) ("Small wind turbines can be used to pump water or provide power to a home . . . while larger turbines can be used to power an entire community or to provide power to the electricity grid.").

[61] *See* ERBERICH, *supra* note 42, at 5.

[62] RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 43, at 15 fig.13.

[63] *See id.* at 27 ("Roughly 45 reservations were identified that have areas with Class 5 or 6 winds, which are the best for wind development.").

[64] *Id.* at 27–28.

[65] *See, e.g.*, SAGINAW CHIPPEWA INDIAN TRIBE, DOE GRANT DE-FG36-04GO14252: STATEMENT OF OBJECTIVES SAGINAW CHIPPEWA INDIAN TRIBE WIND/ALTERNATIVE ENERGY FEASIBILITY STUDY (2004), *available at* http://www.osti.gov/bridge/servlets/purl/951207-UFH7bW/951207.pdf (seeking government funding for initial wind energy assessments); BRENDA TREFON ET AL., DOE AWARD NUMBER DE-FG36-04GO14020: KENAITZE INDIAN TRIBE WIND AND SOLAR FEASIBILITY STUDY 3–4 (2006), *available at* http://apps1.eere.energy.gov/tribalenergy/pdfs/kenaitze06final.pdf (describing to the DOE grant program the steps taken by the tribal project to determine the feasibility of developing wind and solar energy resources for local operations, and concluding in part that their goals were "over reaching for a one-year project, funded on less than $50,000"); U.S. DEP'T OF ENERGY, 20% WIND ENERGY BY 2030: INCREASING WIND ENERGY'S CONTRIBUTION TO U.S. ELECTRICITY SUPPLY 175–83 (2008), *available at* www.nrel.gov/docs/fy08osti/41869.pdf (describing the variable nature of wind classes and the factors that go into wind technology cost-performance analysis).

monthly basis."[66] Furthermore, the Tribe must also possess "a well-developed project concept."[67] These requirements are more difficult to meet in the rural areas; which means that the regions in the greatest need of a self-contained alternative energy resource are often unable to qualify for these governmental services. Despite these requirements, wind resources remain one of the most cost-effective renewable energy resources;[68] therefore, it is in the Tribes' best interests to pursue programs that would allow them to establish wind farms on Tribal lands.

In Canada, wind power on reservations has received a relatively substantial amount of funding as well. However, the ability to store the energy due to the intermittent and undependable nature of wind power remains a top priority and concern.[69] Just like photovoltaics, wind power can be harnessed by individual users within the reservation or tied to part of the grid as a whole, offering an appealing source of renewable energy for remote reserves and reservations, as well as those reserves and reservations hoping to increase their internal energy capacity.

C. *Hydroelectric (Hydropower)*

Hydroelectric (also known as hydropower) is generated from the captured energy from flowing water, which can be turned into electricity.[70] Canada and the United States are two of the world's top producers of hydropower, the most commonly-used renewable resource in both countries.[71] Canada in particular has immense undeveloped hydropower potential, with the ability to double its current capacity and generate enough electricity to heat and light an additional nineteen million homes.[72]

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[66] ERBERICH, *supra* note 42, at 6; *see also supra* note 65 (referencing two of the tribes who sought and were awarded DOE funding for tribal alternative energy projects).

[67] *See Native American Anemometer Loan Program*, US. DEP'T OF ENERGY (Oct. 19, 2011), www.windpoweringamerica.gov/nativeamericans/anemometer_loan.asp.

[68] RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 48, at 26.

[69] *See Wind and Storage Demonstration in a First Nations Community, Cowessess First Nation*, NATURAL RESOURCES CANADA (Nov. 19, 2011), http://www.nrcan.gc.ca/energy/science/programs-funding/2056 (describing efforts to store wind power on Cowessess First Nation land).

[70] *Guide to Tribal Energy Development: Hydropower*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/hydroelectric_power.html (last updated Aug. 26, 2007).

[71] *See Hydroelectric Power Water Use*, U.S. GEOLOGICAL SURVEY (Feb. 08, 2011), http://ga.water.usgs.gov/edu/wuhy.html (noting that although most energy is produced by fossil-fuel and nuclear power in the United States, hydro-electricity accounts for approximately seven percent of the nation's total power); Canadian Hydropower Association, *Hydropower in Canada: Past, Present, and Future*, RENEWABLE ENERGY WORLD (Oct. 1, 2009), http://www.renewableenergyworld.com/rea/news/article/2009/10/hydropower-in-canada-past-present-and-future.

[72] *See* Canadian Hydropower Association, *supra* note 71 (reporting that Canada has the capacity to double its current production, which is comprised of 475 hydroelectric generating plants that produce an average of 355 terawatt-hours of power per year, with one terawatt-hour representing enough electricity to heat and power 40,000 homes).

While larger-scale hydroelectric dams can create huge lakes, upset natural habitats, and displace entire towns, small-scale hydroelectric dams only divert part of a river, thereby decreasing the environmental impact on the local ecosystem.[73] Constructing small-scale hydroelectric plants in the United States also requires fewer construction permits, making them more attractive to small-scale developers, including Tribes.[74]

Hydropower is highly desirable in Canada as well, since many First Nations are located on the shores of rivers and waterways with the potential for small-scale hydropower.[75] While reservations and reserves have had first-hand experience with the disruption caused by large-scale hydroelectric dams,[76] small-scale hydropower remains a feasible sources of alternative energy generation for those reserves and reservations containing a river, as there is a minimal impact on fish migration, water quality, and wildlife habitat.[77] Cost will most likely be the only potentially significant additional inhibitor.[78]

D. *Biomass Power (Biopower)*

Biomass (i.e., any organic matter derived from plants or animals) can be converted into multiple useable forms of power, including biofuels and the direct use of woody biomass.[79] The most commonly-used technique to generate electric power from biomass is through biopower.[80] Biopower

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[73] *See* NAT'L RENEWABLE ENERGY LAB., SMALL HYDROPOWER SYSTEMS 2 (2001), *available at* http://www.nrel.gov/docs/fy01osti/29065.pdf ("Although there are several ways to harness the moving water to produce energy, *run-of-the-river systems* . . . do not require large storage reservoirs . . . [and] are sometimes used for . . . small-scale hydro[] projects.").

[74] *See* DEAN B. SUAGEE, RENEWABLE ENERGY IN INDIAN COUNTRY: OPTIONS FOR TRIBAL GOVERNMENTS 13 (1998), *available at* http://www.repp.org/repp_pubs/articles/issuebr10/issuebr10.html (reporting that a substantial number of hydroelectric dams now operate in Indian Country); *see also* Roger Taylor, *Tribal Energy Program Webinar: Hydropower 101*, NATIONAL RENEWABLE ENERGY LABORATORY (Sept. 17, 2010), apps1.eere.energy.gov/tribalenergy/pdfs/webinar_hydropower101.pdf (listing the key advantages, disadvantages, and federal financial incentives that tribes interested in hydro projects must consider).

[75] DIANA CAMPBELL, MORE THAN WIND: EVALUATING RENEWABLE ENERGY OPPORTUNITIES FOR FIRST NATIONS IN NOVA SCOTIA AND NEW BRUNSWICK 50 (2011).

[76] Suagee, *supra* note 74, at 6.

[77] *See Guide to Tribal Energy Development: Small-Scale Hydropower*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/hydropower_small.html (last updated Nov. 22, 2011).

[78] *See* CAMPBELL, *supra* note 75, at 50 ("Run-of-river facilities typically have a capital cost of $1,500-$6,000/kW installed ([roughly] $15,000,000 for a 6 MW project) and produce electricity at 5-20¢/kWh.").

[79] *See Guide to Tribal Energy Development: Biomass Energy*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/biomass_energy.html (last updated Aug. 5, 2009) ("Domestic biomass resources include agricultural and forestry residues, municipal solid wastes, industrial wastes, and terrestrial and aquatic 'energy crops' grown solely for energy purposes.").

[80] *Id.*

converts renewable biomass[81] into electricity using "boilers, gasifiers, turbines, generators, and fuel cells."[82] Because of the organic matter requirement to generate electricity, the ability to implement a biopower facility is dependent on its location, accessibility to pre-existing biomass resources, or ability to generate biomass through agriculture.[83] Biomass can also be used in co-firings, where burnable waste, from sawmills or agricultural products, are added to coal-burning plants.[84]

Despite potentially producing significant air pollution depending on the biomass being incinerated, biopower is one of the cheapest forms of renewable energy available on most reservations.[85] A 2000 study identified four reservations most likely to be successful at generating central station renewable-based electricity for less than the wholesale cost of power sold to those reservations, which included the Eastern Cherokee Reservation in North Carolina, the Alabama and Coushatta Reservation in Texas, the Coushatta Reservation in Louisiana, and the Mississippi Choctaw Reservation and Trust in Mississippi.[86] Due in large part to cost, biopower was the chosen renewable resource in all four reservations, which suggests that without production tax credits or renewable energy incentive credits being made available, most reservations will be unable to adopt more environmentally-friendly renewable resources, such as wind and solar power. In Canada, however, biomass facilities are heavily regulated and monitored by the Ministry of the Environment due to their emissions, which may be capped.[87] Therefore, while biopower remains the most "accessible" renewable resource, given the general availability of biomass on reserves and reservations, Tribes interested in truly investing in

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[81] The renewable biomass products used in biopower include "residues from the wood and paper products industries, residues from food production and processing, trees and grasses grown specifically as energy crops, and gaseous fuels produced from solid biomass, animal wastes, and landfills." *Guide to Tribal Energy Development: Biopower*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/biomass_biopower.html (last updated Oct. 14, 2010).

[82] *Id.*

[83] ERBERICH, *supra* note 42, at 9 (identifying two main categories of biomass—residue sources, which are waste products, and fuel crops, which include corn or soybeans-grown specifically to produce fuel).

[84] *Id.*

[85] *See* RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 48, at x ("In general, biomass provides the greatest potential for relatively inexpensive renewable-based central station power on 52 of the 61 reservations distributed widely across the United States.").

[86] *Id.* at 23.

[87] *See* BIOCAP CANADA, AN INFORMATION GUIDE ON PURSUING BIOMASS ENERGY OPPORTUNITIES AND TECHNOLOGIES IN BRITISH COLUMBIA 65 (2008), *available at* http://www.energyplan.gov.bc.ca/bioenergy/PDF/BioenergyInfoGuide.pdf ("Provincial air emission regulations apply to biomass facilities, and a permit must be obtained from the regional BC Ministry of Environment."); *Fact Sheet: Biomass Power*, INDEP. POWER PRODUCERS ASS'N OF BRITISH COLUMBIA, http://www.bcenergyblog.com/uploads/file/IPPBC_Fact_Sheet_Biomass.pdf (last visited Feb. 6, 2012).

less detrimental renewable energy sources should look elsewhere.

E. *Geothermal Energy*

Geothermal energy comes from the residual heat from Earth's formation and the radioactive decay deep inside the Earth.[88] As this heat is brought to the surface via molten rock and conduction through solid rock, the temperature of the Earth's surface and groundwater increases, creating hydrothermal reservoirs.[89] Traditionally, Indian Tribes and First Nations used the hot springs and pools created by geothermal energy for healing and spiritual purposes, viewing them as sacred waters.[90] But today, depending on the heat of the hydrothermal reservoir, the geothermal energy can be used directly for space and water heating, converted into electricity, and pumped long distances for space heating and cooling elsewhere.[91]

Electric generation is only possible when geothermal heat is at its highest, which is generally confined to the west coast and Rocky Mountain areas of the United States and Canada.[92] Furthermore, it is difficult to produce electricity except on a utility scale as it requires industrial-type power plants, which are finely tuned to the "unique set of characteristics and operating conditions" presented by each geothermal source, be it steam, brine, or a combination of the two.[93] Consequently, geothermal energy has not been developed for the production of electricity on reservations or reserves,[94] although the incorporation of direct use for space and water heating has been used to great success in remote reserves and reservations.[95] Geothermal pumps have also been employed on several reservations, because, while they are significantly more expensive than

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[88] *Guide to Tribal Energy Development: Geothermal Energy Systems*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/geothermal_energy.html (last updated May 10, 2010).

[89] *Id.*

[90] CANADIAN GEOTHERMAL ENERGY ASS'N, OVERVIEW OF CANADIAN GEOTHERMAL PROJECTS 2, 16 (2010).

[91] *Guide to Tribal Energy Development: Geothermal Energy Systems*, *supra* note 88.

[92] CANADIAN GEOTHERMAL ENERGY ASS'N, *supra* note 90, at 2–4, 7; *Guide to Tribal Energy Development: Geothermal Resources*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/geothermal_resources.html, (last updated Feb. 10, 2010).

[93] OFFICE OF GEOTHERMAL TECHS., ENERGY CONVERSION 1 (1998), *available at* http://www1.eere.energy.gov/geothermal/pdfs/conversion.pdf.

[94] ERBERICH, *supra* note 42, at 11; RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 48, at 29.

[95] *See* JOHN R. VASS, FORT BIDEWELL INDIAN COMMUNITY GEOTHERMAL DISTRICT HEATING STUDY 5 (2008), *available at* http://apps1.eere.energy.gov/tribalenergy/pdfs/0811review_16vass.pdf (describing the project's objectives of using geothermal heating to serve all residential and community buildings on the reservation); Ministry of Energy and Mines, *Geothermal Questions & Answers*, GOVERNMENT OF BRITISH COLUMBIA (July 2010), http://www.empr.gov.bc.ca/Titles/OGTitles/geothermal/Pages/GeothermalQuestionsandAnswers.aspx (stating that using geothermal energy for remote community heat and electricity reduces diesel dependence).

standard heat pumps, they are several times more efficient.[96]

In total, as of 2000, seventy-two reservations in the United States appeared to have the potential for geothermal direct heating, with the remaining reservations potentially serviceable by geothermal pumps.[97] The cost of developing geothermal resources is, again, extremely site-specific due the intrinsic variations in geothermal energy.[98] Therefore, the likelihood of bipower offering an affordable, renewable source of energy can only be determined after surveying the specific reserve or reservation.

V. A BASIC OVERVIEW OF THE RENEWABLE ENERGY REGULATORY FRAMEWORKS IN THE UNITED STATES AND CANADA

While both Canada and the United States have recently benefitted from increased voluntary corporate investments in renewable energy projects due to instability in natural gas and fuel pricing,[99] Indian Tribes and First Nations have not seen the same level of investment or development. As demonstrated above, there is a tremendous opportunity for implementing renewable energy projects on reserves and reservations to satisfy the local electricity markets. Many reserves and reservations have multiple renewable resource options; however, the development, regulation, and generation of those facilities do not exist in isolation—they will most likely interact to some degree with the formalized, regulatory framework surrounding renewable energies. Furthermore, the profitability of actually implementing them will depend on projected renewable development costs, as well as the regional wholesale electricity price and transmission costs.[100] As a result, it is important to understand the structure and role of electric utilities in Canada and the United states in order to determine how energy generated on reserves and reservations can be integrated into that preexisting framework.

In Canada, the federal government has jurisdiction over nuclear energy and regulates electricity exports and international transmission lines through the National Energy Board.[101] The provincial governments are in charge of resource development, which includes energy policy and regulation, and are therefore responsible for any regulatory initiative to increase or set renewable energy production.[102] Most regulatory utilities

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[96] RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 48, at 30.

[97] *Id.* at 29.

[98] *Id.* at 30.

[99] MEREDITH WINGATE ET AL., COMM'N FOR ENVTL. COOPERATION, FOSTERING RENEWABLE ELECTRICITY MARKETS IN NORTH AMERICA 1 (2007), *available at* http://www.cec.org/Storage/60/5230_Fostering-RE-MarketsinNA_en.pdf.

[100] RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 48, at 23, 26.

[101] *See* National Energy Board Act, R.S.C., 1985, c. N-7 (Can.) (examining the roles and responsibilities of the governments and individuals in the regulatory energy market).

[102] WINGATE ET AL., *supra* note 99, at 2.

are provincial Crown Corporations owned by the province; however, in recent years, the number of private electric utilities has increased.[103] There is also great variation in the structure and role of electric utilities from province to province—ranging from provinces where a single utility is responsible for all of the electric distribution to provinces where aspects of the competitive model have been introduced—creating a structure of multiple utilities and separate electricity generation, distribution, and retail sales.[104] Despite the declining costs of renewable energy, development has been largely undervalued in Canada due to the abundant availability of conventional energy resources, including natural gas, coal, and large-scale (and environmentally disruptive) hydroelectric facilities.[105] This low conventional electricity price point has been described as "the greatest barrier to renewable electricity development in Canada."[106]

In the United States, the Federal Energy Regulatory Commission ("FERC"), an independent government agency within the DOE, governs the electricity market along with state public utility commissions.[107] FERC is responsible for regulating the interstate transmission of electricity and the wholesale market of electricity, licensing and inspecting hydroelectric projects, and monitoring energy markets to protect consumers against market manipulation.[108] State public utility commissions regulate the retail market of electricity, approve utility resource plants, regulate utility operations, and protect consumers against the adverse effects of a natural public utility monopoly.[109] States are either vertically integrated (where the local utility company is responsible for the generation, distribution, and retail sale of electricity in the area) or restructured (where the local utility company is still responsible for the generation and distribution of electricity in the area but consumers can choose their own supplier), with the numbers split almost evenly between the two.[110]

With the exception of a handful of strong, federal incentives for

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[103] *Id.*

[104] *See id.* at 2, 9–11, 11 fig.4 (describing the variations in the regulatory and voluntary drivers at provincial and federal levels).

[105] *Id.* at 2.

[106] *Id.* at 2–3.

[107] 42 U.S.C. §§ 7134, 7172 (2006).

[108] *Id.* § 7172(a).

[109] *See* Federal Power Act § 201, 16 U.S.C. § 824(a)-(b) (extending federal regulation of transmission and sale of electricity in interstate but not intrastate commerce); 42 U.S.C. § 7172(a) (granting FERC jurisdiction to regulate the transmission and sale of electricity under the Federal Power Act). These utility regulations are created on a state-by-state basis, and offer an important public venue for the discussion of electric utility decisions. *See* PUB. UTIL. COMM'N. STUDY, EPA, CONTRACT NO. EP-W-07-064 5–8 (2011), *available at* http://www.epa.gov/ttn/atw/utility/puc_study_march2011.pdf (providing an overview of the core responsibilities and basic structure of the major regulatory agencies overseeing the electric sector).

[110] WINGATE, *supra* note 99, at 3.

renewable energy, including the Production Tax Credit ("PTC"), the Energy Policy Act of 2005, the Farm Bill, and presidential Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," most renewable energy policy activity occurs at a state level in the form of renewable portfolio standards, which set requirements for minimum levels of renewable energy production.[111] These renewable portfolio standards are "some of the most significant policy drivers for new renewable resources,"[112] and all of the provinces and almost half of the states have adopted some type of target for the supply of renewable energy.[113] In the United States, this practice is known as individual minimum renewable standards, which some claim has the unintended side-effect of driving up the overall price of electricity compared to that generated by traditional fossil fuel.[114] Only seven states have extended their minimum renewable energy generation requirements to Indian Tribes.[115]

While both the states and the provinces in the United States and Canada appear to be aggressively enacting renewable energy programs and incentives,[116] the impact of these localized actions is "still modest relative to the potential impact of more aggressive federal policy,"[117] which could coordinate and fund renewable energy projects on a much larger scale. Consequently, while developing renewable energy projects on reserves and reservations is more likely to immediately benefit from state- and province-directed programs, there is a greater potential for long-term renewable energy development through federal initiatives.

VI. GOVERNMENTAL DEVELOPMENT INCENTIVES AND FUNDING OPTIONS FOR RENEWABLE ENERGY PROJECTS ON RESERVES AND RESERVATIONS

As described above, all tribal lands are in possession of at least some renewable energy resources, though the availability of these resources varies wildly based on geography, as does the economic feasibility of actually using those resources. If adequate funding can be found and

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[111] *Id.* at 4.

[112] *Id.*

[113] *Id.* at 9–12 (noting that three Canadian provinces have renewable energy mandates, seven provinces have voluntary targets, and "twenty-one states plus the District of Columbia . . . have enacted a [renewable portfolio standard]").

[114] *E.g.*, Michael Connolly Miskwish, *Capturing the Full Benefit of On-Reservation Renewable Energy*, 7 ABA NATIVE AM. RESOURCES COMM. NEWSLETTER 3, 3 (May 2010) ("[I]n some locations, the cost is over 300 percent of the price of fossil fuel generation.").

[115] These states are Arizona, Connecticut, Iowa, Maine, Minnesota, Nevada, and Texas. RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS, *supra* note 48, at 31 tbl.8.

[116] *See* WINGATE, *supra* note 99, at 2–4 (discussing renewable energy initiatives at the state and province levels).

[117] *Id.* at 4.

research into the viability of reliable energy generation can be conducted, the development of renewable energy resources offers Tribes and First Nations an exciting opportunity to generate their own electricity, which, in turn, can either be used on the reserve or reservation, or sold into the states' or provinces' power grids.[118] Both Canada and the United States have attempted to formalize this funding and support process through state, provincial, and federal governmental programs. In addition, new, private corporations are also approaching Tribes and First Nations to enter into lease or partnership agreements for renewable energy generation facilities on Tribal and First Nations lands. Given the historical exploitation of indigenous resources and marginalization of Tribal and First Nation interests, however, pure lease arrangements with corporations must be subject to additional scrutiny to ensure that there is equality in the bargaining power.

A. *The United States' National Framework*

In the United States, the establishment of an official framework to assist Tribes in developing renewable energy projects is a relatively recent development. Less than ten years ago, no formal incentives for renewable energy development on Indian reservations existed, despite the DOE's assessment that there were sixty-one reservations with renewable energy resources that could be developed for central station-generation, to electrify rural Indian communities.[119] A Senate Report released in 2002 recognized the need for development of renewable energy resources on Tribal Lands and strongly supported doubling the Renewable Indian Energy Resources line item in the Department of Energy: Power Technologies Program Funding.[120] Eventually, the Indian Tribal Energy Development and Self-Determination Act ("ITEDSA")[121] was passed in 2005, granting Tribes greater control over their energy resources by abolishing the need for federal approval and supervision under certain circumstances when entering into leases and other agreements for the construction of renewable energy.[122] Under ITEDSA, Tribal Lands, for energy development purposes, include Indian reservations, public domain

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[118] *See Guide to Tribal Energy Development: Assessing Energy Resources*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/tribalenergy/guide/assessing_energy_resources.html (last updated Mar. 4, 2011) ("[R]enewable energy resources . . . can be used onsite or fed into the power grid.").

[119] S. REP. NO. 113–151, at 140 (2002).

[120] *See id.*

[121] Indian Tribal Energy Development and Self-Determination Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified at 25 U.S.C. §§ 3501–06 (2006)).

[122] *See* 25 U.S.C. § 3504(a)-(c) (providing that tribes may enter into business agreements and leases and grant rights-of-way over tribal lands without approval of the Secretary of the Interior under certain circumstances).

Indian allotments, former Indian reservations in Oklahoma, lands held under the provisions of the Alaska Native Claims Settlement Act,[123] and lands held in fee simple or under a Federal land lease.[124]

ITEDSA mainly intended to provide financial and technical assistance to federally-recognized Tribes, tribal energy resource development organizations, and tribal consortiums for the evaluation and development of renewable energy resources on Tribal Lands.[125] The objective is to foster self-determination and tribal economic growth.[126] ITEDSA stresses that these objectives can be accomplished through government-to-government partnerships, and these partnerships emphasize the need to bring renewable energy projects to enhance human capacity through education and training.[127] Furthermore, ITEDSA hopes to make a difference in the quality of life of Native Americans while simultaneously empowering tribal leaders to make informed decisions about sustainable energy choices.[128] The place of the federal government in this scheme is on the sidelines, where it works primarily to assist the Tribes along their path to self-determination.[129]

To that end, ITEDSA created the Office of Indian Energy Policy and Programs within the DOE and established an Indian energy resource development program in the Department of the Interior.[130] The DOE provides financial assistance through grants, loans, and loan guarantees, and technical assistance, renewable-energy technology information, and training.[131] The DOE has disbursed five million dollars a year since 2005—for all 566 Tribes—out of approximately twenty million dollars a year authorized by Title V of the Indian Energy Environmental Protection

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[123] *Id.* § 3501(2).

[124] Office of Energy Efficiency & Renewable Energy, *DOE's Tribal Energy Program*, U.S. DEP'T OF ENERGY 12 (2010).

[125] 25 U.S.C. § 3502(a)-(d).

[126] Sullivan, *supra* note 6, at 828 (citing 25 U.S.C. § 3502(a)(1) (2006)).

[127] *See* 25 U.S.C. § 3502(a)(2) (providing that the Secretary of the Interior shall provide grants for use in "developing or obtaining the managerial and technical capacity needed to develop energy resources on Indian land, and to properly account for resulting energy production and revenues" and to "develop tribal capacity to establish and carry out tribal environmental programs in support of energy-related programs and activities").

[128] *See id.* § 3502(a)(1) (providing that the Indian energy resource development program shall be established to "assist Indian tribes in the development of energy resources and further the goal of Indian self-determination"); *id.* § 3502(a)(2)(D)(i)-(ii) (providing that the Secretary of the Interior shall provide resources for tribes to establish "training programs for tribal environmental officials" and "the development of model environmental policies and tribal laws, including tribal environmental review codes").

[129] *See* Sullivan, *supra* note 6, at 828 (noting that ITEDSA "confirms the federal government's role in assisting Tribes with the development of their energy resources").

[130] *See* 25 U.S.C. § 3502(a)(1) (establishing the mandate); 42 U.S.C. § 7144e(a) (creating the Department).

[131] 25 U.S.C. § 3502(b)-(c).

Act.[132] Between 2002 and 2008, the DOE funded ninety-three tribal energy projects.[133] It has also established the National Renewable Energy Laboratory, which acts under the DOE's Tribal Energy Program to "promote[] Tribal energy sufficiency, economic development, and employment on Tribal lands through the use of renewable energy and energy efficiency technologies."[134] Similarly, the Department of the Interior provides financial assistance for activities (including integration projects, environmental programs, and employee training) as well as available scientific and technical information and expertise at the Tribe's request.[135]

What is most critical to the creation of alternative energy projects, however, is that this Act establishes a procedure for Tribes to apply for primary responsibility in negotiating and executing energy contracts with non-tribal businesses, thereby permitting the building of direct relationships between the Tribe and private businesses without the need to seek formal approval from the Secretary of the Interior.[136] Despite its admirable goals, ITEDSA has been criticized for two significant shortcomings: first, that the financial incentives for renewable energy developments disproportionally reward non-tribal business, and second, the act is likely to result in even greater energy sprawl by focusing too heavily on land-use intensive generation facilities, like biopower.[137]

B. *Canada's Provincially-Led Programs*

Unlike the United States, the Canadian government has been slow to implement any form of federal funding or federally administered incentive program explicitly targeted at renewable energy development on First Nation lands, even though the federal government continues to manage most of these lands under the Indian Act.[138] The provincial governments are responsible for energy regulation, and many of them, through their energy and electricity ministries, have begun placing an increased emphasis on projects in First Nation lands. The hope is that, in terms of

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[132] LIZANA K. PIERCE, OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, DOE'S TRIBAL ENERGY PROGRAM 8 (2010), *available at* apps1.eere.energy.gov/tribalenergy/pdfs/0911review_pierce.pdf.

[133] *Id.* at 12.

[134] OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, TRIBAL ENERGY EFFICIENCY AND RENEWABLE ENERGY DEVELOPMENT OF TRIBAL LANDS 3 (2010), *available at* www.nrel.gov/docs/fy10osti/48815.pdf.

[135] 25 U.S.C. §§ 3502(a)(2), 3503(c)(1).

[136] *Id.* § 3504; *see also* Tribal Energy Resource Agreements Under the Indian Tribal Energy Development and Self-Determination Act, 25 C.F.R. § 224 (2011) (providing for the creation, implementation, and enforcement of Tribal Energy Resource Agreements).

[137] *See* SARA C. BRONIN, THE PROMISE AND PERILS OF RENEWABLE ENERGY ON TRIBAL LANDS 1–2 (forthcoming 2012).

[138] *See supra* Section III.B.

finances and human resources, this approach will be the most efficient way to create localized First Nation renewable energy incentive programs. Below are some of the more prominent efforts, which have met with varying degrees of success.

1. *Ontario and the Aboriginal Energy Partnership Program*

Environmentalism has played an increasingly greater role in decision-making in Ontario over the past three decades, due in large part to the historical importance of natural resource wealth to the stability of the provincial (and national) economy.[139] First Nations' issues, including those surrounding the unique jurisdictional and geographical barriers faced in creating green energy economic development projects, have not traditionally featured prominently within provincial policy debates, thereby marginalizing the community.[140] The Ontario Power Authority ("OPA"), for example, when using a rating method to select and evaluate potential energy providers that are eligible for tariffs and support, considers criteria such as "environmental assessment, zoning, equipment, resource availability, proponent team and financial assessment."[141] While these may seem like reasonable factors to consider, they represented stringent requirements that few First Nations were able to meet at the time due to an overall lack of access to resources and funding to perform those assessments.[142] As a result of the inequalities resulting under OPA, Ontario introduced the Aboriginal Energy Partnership Program ("AEPP") in April of 2010 in a three-part effort to support First Nation and Métis community participation in the development of renewable energy.[143]

The core elements of the AEPP include the Aboriginal Renewable Energy Fund ("AREF"), the Aboriginal Renewable Energy Network ("AREN"), and Aboriginal Community Energy Plans ("ACEPs").[144] Each element attempts to address a specific challenge or focal point of wholly-owned First Nation renewable energy programs: AREF assists with the initial development costs, including soft costs such as feasibility studies and technical research and business cases; AREN uses web-based resources to educate participants about the conservation and energy

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[139] Cheryl Teelucksingh & Blake Poland, *Energy Solutions, Neo-Liberalism, and Social Diversity in Toronto, Canada*, INT. J. ENVTL. RES. PUB. HEALTH 186, 188–89 (2011).

[140] *Id.*

[141] *Support Rationale for the Green Energy Act: Engaging First Nations and Métis Communities*, GREEN ENERGY ACT ALLIANCE, http://www.greenenergyact.ca/Page.asp?PageID=122&ContentID=1077&SiteNodeID=231 (last visited Dec. 21, 2011).

[142] *See id.* (describing the criteria methods used to distinguish potential energy candidates and highlighting the specific shortcomings for First Nations attempting to work within the program).

[143] *Aboriginal Energy Partnerships Programs*, ONTARIO POWER AUTH., http://www.powerauthority.on.ca/first-nations-metis-relations/aboriginal-energy-partnership-program (last visited Feb. 1, 2012).

[144] *Id.* at 188.

development issues facing the renewable energy projects, and ACEPs identify electricity use and new energy resources, while planning for future energy needs.[145] The success of this program is bolstered in part by the province's introduction of a feed-in tariff,[146] which provides standard contracts and prices for renewable energy generation.[147] Under this tariff, consumers receive a guaranteed price over a twenty-year term (or forty years for hydroelectric projects) for all of the power generated and delivered by the renewable energy project, thereby providing investors with a reasonable rate of return over the length of the contract.[148]

One of the greatest successes thus far in the province is the joint venture between the Chippewas of Georgina Island First Nation and Pukwis Energy Co-operative, a community-based co-operative whose members reside in the Greater Toronto Area ("GTA").[149] Together they are currently in the process of constructing the Pukwis Community Wind Park, a 20MW wind generation facility on Georgina Island in Lake Ontario, near Toronto.[150] Once connected to the Ontario grid, it is projected to produce enough electricity to power 7500 homes and displace 15,000 tons of greenhouse gases annually.[151] Financing for the project comes from equity raised within the GTA through co-operative share offerings[152] and from traditional commercial loans backed by long-term power purchase agreements with OPA,[153] including additional AREF funding.[154] Ownership is split with fifty-one percent of the wind park

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[145] *Aboriginal Energy Partnerships Program Q&As*, ABORIGINAL RENEWABLE ENERGY NETWORK, http://www.aboriginalenergy.ca/aboriginal-energy-partnerships-program-qas#1 (last visited Feb. 1, 2012).

[146] A feed-in-tariff requires the electric utilities to buy renewable energy at a fixed rate above the market rate in an effort to encourage the development of renewable energy generation facilities through guaranteed profitable income over the project's life. *See* SUBHES C. BHATTACHARYYA, ENERGY ECONOMICS: CONCEPTS, ISSUES, MARKETS AND GOVERNANCE 262–63 (2011) (providing a graph to demonstrate the ideal feed-in tariff point). In general these are long-term tariffs, although occasionally the price declines over time or is adjusted periodically. *Id.* at 262.

[147] *Introduction to the FIT Program*, ABORIGINAL RENEWABLE ENERGY NETWORK, http://www.aboriginalenergy.ca/introduction-fit-program (last visited Feb. 6, 2012).

[148] *Id.*

[149] *Pukwis Community Wind Park*, PUKWIS ENERGY CO-OP, http://windfallcentre.ca/pukwis/index.php?st=1&s=About_Pukwis&p=Overview&t=& (last visited Dec. 22, 2011) [hereinafter *Pukwis Community Wind Park*].

[150] *Id.*

[151] *Pukwis Community Wind Park is Now Venturing into Its Next Phase of Development*, PUKWIS ENERGY CO-OP, www.pukwis.ca (last visited Feb. 3, 2012).

[152] Potential investors must become a member of the Pukwis Energy Co-op for a one-time fee of twenty-five dollars and purchase at least ten preference shares at $100 apiece, for a minimum investment of $1025. *Invest in Pukwis*, PUKWIS ENERGY CO-OP, http://windfallcentre.ca/pukwis/index.php?st=1&s=Investment&p=Overview& (last visited Feb. 6, 2012).

[153] *Pukwis Community Wind Park*, *supra* note 146.

[154] Special Feature, *Aboriginal Power Projects: A Progress Report*, 25 IPPSO FACTO 19, 34 (2011).

owned by the First Nations, and forty-nine percent owned by the Pukwis Energy Co-op.[155] It is the first project in Canada to be jointly owned by a First Nation and a local co-operative,[156] and it is an important first step towards future First Nation leadership in the development of renewable energy resources.

2. *British Columbia and the First Nation Clean Energy Business Fund*

With the newly-overhauled provincial Clean Energy Act, British Columbia created a specific First Nation Clean Energy Business Fund to increase First Nation participation in the clean energy sector.[157] This initially created an approximately five million dollar[158] fund that is intended, through agreements between the provincial government and the First Nations, to provide capacity funding (i.e., support the undertaking of feasibility studies and identify and engage with clean energy project experts); equity funding (i.e., assist First Nations in acquiring equity positions in pre-existing energy projects or establishing their own); and revenue sharing (i.e., distribute a portion of the revenues from clean energy projects to the First Nations based on "new, net, incremental revenues to government derived from water rentals, land rentals, and eventually wind participation rents").[159] This push for an increased First Nation renewable energy presence goes hand-in-hand with the province's goal of establishing electricity self-sufficiency by 2016, meaning that in under four years all of the electricity in British Columbia will have to come from domestic sources.[160] Consequently, First Nation power generation is one of the many new approaches that the province is going to have to adopt in order to "renew, replace and expand" the current generation, transmission, and distribution infrastructure.[161] Should the self-sufficiency requirement be dropped, however, there may be less of an overall demand for First Nation alternative power since BC Hydro (the provincial electric service provider)

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[155] *Id.*

[156] *About Community Power*, COMMUNITY ENERGY PARTNERSHIPS PROGRAM, http://www.communityenergyprogram.ca/Resources/ResourcesCommunityPower.aspx (last visited Feb. 6, 2012).

[157] Clean Energy Act, Bill 17-2010 § 20 (B.C.); *First Nations Clean Energy Business Fund*, BRITISH COLUMBIA MINISTRY OF ABORIGINAL RELATIONS & RECONCILIATION, http://www.gov.bc.ca/arr/economic/fncebf.html (last visited Feb. 6, 2012) [hereinafter *First Nations Clean Energy Business Fund*].

[158] Clean Energy Act, Bill 17-2010 § 20(2) (B.C.); *First Nations Clean Energy Business Fund*, *supra* note 154.

[159] Clean Energy Act, Bill 17-2010 §§ 20(4)–(5) (B.C.); *First Nations Clean Energy Business Fund*, *supra* note 154.

[160] BRITISH COLUMBIA HYDRO, BC HYDRO SERVICE PLAN 2011/12-2013/14 5 (2011), *available at* http://www.bchydro.com/etc/medialib/internet/documents/info/pdf/service_plan_2011_12_2013_14.Par.0001.File.service_plan_2011_12_2013_14.pdf.

[161] *Id.* at 5, 18–19.

will be able to potentially purchase cheaper power from outside of the province.[162]

British Columbia has also developed a unique strategy between First Nations and China, largely in response to the difficulties originating from earlier energy and natural resource partnerships between the province and the Chinese government.[163] In particular, Chinese government officials and business owners were "generally unaware that [F]irst [N]ations have rights and title to specific lands in Canada and must be consulted on energy development projects," and the provincial and federal initiatives that had been undertaken to promote Canada's natural resources failed to assist First Nations in accessing the market.[164] Consequently, the new partnership aims to "to ensure that [F]irst [N]ations communities benefit from investment and that, if development occurs, it's based on their view of sustainable development."[165]

3. *New Brunswick and Nova Scotia: The Maritimes Weigh In*

In recent years, New Brunswick has sought to increase the renewable energy portion of its provincial energy generation, committing to having an additional ten percent of its energy derived from renewable sources by 2016.[166] Following the perceived success of the Ontario feed-in tariff program, New Brunswick developed the Community Energy Policy to pay 10 cents/kWh for power coming from community power projects of less than 15MW, including those majority-owned by First Nations.[167] Of the 75MW of community projects that the policy intended to fund, it mandated that 25MW be allocated to First Nations.[168] Critics attacked this policy for failing to guarantee access to the grid, which is ensured with traditional

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[162] *See* Wawmeesh Hamilton, *Possible Cuts Loom for Sustainable Energy Projects that Support B.C. First Nations*, INDIAN COUNTRY TODAY MEDIA NETWORK (Dec. 5, 2011), http://indiancountrytodaymedianetwork.com/2011/12/05/possible-cuts-loom-for-sustainable-energy-projects-that-support-b-c-first-nations-65886 (describing the possible implications of a change to the self-sufficiency requirements for independent power producers in the province).

[163] Edward John & Yuen Pau Woo, *Investing in a First Nations-China Strategy*, GLOBE AND MAIL, (Aug. 10, 2011), http://www.theglobeandmail.com/news/opinions/opinion/investing-in-a-first-nations-china-strategy/article2124447/.

[164] *Id.*

[165] *Id.*

[166] *Turning the Corner: Detailed Emissions and Economic Modelling*, ENV'T CANADA, http://www.ec.gc.ca/doc/virage-corner/2008-03/571/Annex3_eng.htm (last updated Mar. 7, 2008).

[167] *New Brunswick Renewable Power Strategy*, CANREA, http://www.canrea.ca/site/provincial-updates/new-brunswicks-renewable-power-strategy/ (last visited Dec. 21, 2011); *see also* NEW BRUNSWICK DEP'T OF ENERGY, THE COMMUNITY ENERGY POLICY 2 (2010), *available at* http://www.gnb.ca/0085/Community/pdf/Community%20Energy%20Policy%20-%20English.pdf (extending the majority ownership requirement to "First Nations, municipalities, cooperatives, not-for-profit organizations and institutions," while permitting minority participants to include New Brunswick-based private corporations and investors).

[168] NEW BRUNSWICK DEP'T OF ENERGY, *supra* note 167, at 1.

feed-in tariff programs, and argued that the price of the feed-in tariff was too low to encourage the development of renewable energy projects since it failed to include a reasonable rate of return for the producers.[169]

Nova Scotia also adopted an ambitious renewable energy target of having twenty-five percent of all electricity generation in the province derived from renewable sources by 2015, and forty percent by 2020.[170] Similar to New Brunswick, Nova Scotia established the Community Feed-in Tariff ("COMFIT") to support community-owned projects to reach these targets.[171] The goal in both provinces is to move as quickly as possible away from the traditional coal plants that supply most of the regional electricity towards renewables.[172] COMFIT also includes First Nations in its definition of "Community," and stresses the importance of including First Nations in renewable electricity efforts "in a mutually acceptable manner."[173] It does not, however, include a required First Nation percentage of generation.[174] Despite this, Nova Scotia does have a solid history of consultation and collaboration with the Mi'kmaq (the largest First Nation Band in the province), and "the province has committed to encouraging developers to engage directly with the Mi'kmaq at the early stages of project development."[175]

Despite both of these programs' efforts, the governments of New Brunswick and Nova Scotia have provided little direct funding for Tribal energy projects in the provinces, focusing most of the alternative energy programs on wind power, while neglecting other forms, such as solar and geothermal.[176] It is therefore left to the First Nations themselves to develop alternative energy generation facilities that suit the realities of their reserves[177] and that can fully take advantage of the feed-in tariffs offered in both provinces.

VII. ADDITIONAL LEGAL CONSIDERATIONS WHEN DEVELOPING RENEWABLE ENERGY RESOURCES ON RESERVES AND RESERVATIONS

The lack of funding and access to governmental resources are not the

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[169] *See New Brunswick Renewable Power Strategy*, *supra* note 167 (quoting the Executive Director of the Conservation Council of New Brunswick as saying "[t]he proposed price is too low to enable communities to develop renewable energy projects. They just won't be able to afford it.").

[170] *Atlantic Energy Gateway Supports Renewable Development*, GOV'T OF NOVA SCOTIA (Nov. 29, 2010), http://www.gov.ns.ca/energy/atlantic-energy-gateway.asp.

[171] *See* NOVA SCOTIA DEP'T OF ENERGY, RENEWABLE ELECTRICITY PLAN 10 (2010), *available at* http://www.gov.ns.ca/energy/resources/EM/renewable/renewable-electricity-plan.pdf.

[172] *Id.* at 8.

[173] *Id.* at 14.

[174] *Id.* at 2–3.

[175] *Id.* at 22.

[176] CAMPBELL, *supra* note 75, at 10–11.

[177] For example, First Nations lacking in available land can mount solar panels on rooftops instead to utilize the pre-existing space that they have.

only hindrance to the development of alternative energy resources on reserves and reservations, especially when Tribes seek commercial partnerships with non-tribal organizations. These private-tribal partnerships can allow Tribes to gain access to the knowledge and financial resources of the corporation, but they can also present additional legal considerations, such as tax issues, questions of jurisdiction and land use, leases, sovereign immunity, and environmental concerns.

A. *Taxation on Multiple Levels*

The federal government in the United States provides several financial incentives in order to promote the renewable energy market, which include an investment tax credit, a PTC, and accelerated depreciation.[178] These incentives, however, are not generally applicable to Tribes since they are prevented from claiming federal tax credits, and therefore they do not represent a strong source of financial encouragement for Tribal investment in energy development.[179] As a result, Tribes must balance the loss of investment return against the opportunity costs of other potential investments with the reality that it may be several years, if not decades, before a substantial return is received from these renewable energy resources.[180] Pre-purchase power agreements also offer an opportunity to compensate for the lack of direct investment. However, these are difficult to negotiate and are rarely as profitable.[181]

While an independent developer leasing land on a Tribal Reservation will be able to take advantage of the affiliated renewable energy tax credits,[182] constructing a new renewable energy generation facility can also potentially result in sales tax, property tax, and corporate income taxes.[183] A Tribe cannot provide developers with a promise of a tax-free project without the agreement of the state. At the same time, the states justify their right to tax based on the assertion that the non-tribal developers are still benefiting from state-provided services (e.g., roads, utilities/electricity, land maintenance) during the construction and operation of the projects; therefore, they should not get a "free ride" simply because they are working on Tribal Lands within the state.[184] Federal law does allow accelerated depreciation for certain business investments on tribal lands,[185]

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[178] Miskwish, *supra* note 13, at 3.

[179] *Id.* at 4.

[180] *Id.*

[181] *Id.*

[182] A. DAVID LESTER, U.S. DEP'T OF ENERGY, TRIBAL RENEWABLE ENERGY—FINAL REPORT 31 (2008), *available at* http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1022&context=usdoepub.

[183] Miskwish, *supra* note 13, at 4.

[184] *Id.*

[185] I.R.C. §168(j)(8) (2010).

and some states grant credits against their taxes or abate the state's leasehold taxes and certain other state taxes for projects on tribal land.[186] This may serve as an enticement for development. Furthermore, as a sovereign entity, a Tribe also has significant power to tax activities on tribal lands,[187] which is especially important for developers to understand when entering into contracts with a Tribe, as they will need to firmly determine the extent of the tax. It is the responsibility of the developers to determine whether provisions are necessary to avoid or minimize the risk and impact of double state-tribal tax.[188]

In Canada, federal tax credits have historically been available for renewable energy projects, including the Class 43 accelerated write-off tax provision[189] and the former Wind Power Production Incentive ("WPPI") tax credit.[190] These are not, however, used to maximize investment to the same degree as the Renewable Energy Production Tax Credit in the United States.[191] Under the Canadian Indian Act, both "the interest of an Indian or a band in reserve lands or surrendered lands" and "the personal property of an Indian or a band situated on a reserve" are exempt form taxation.[192]

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[186] *See Overview of Federal Taxation Provisions Relating to Native American Tribes and Their Members: Scheduled for Pub. Hearing Before the S. Comm. on Finance* (July 22, 2008) (discussing economic development incentives); *see also* N.M. STAT. ANN. § 7-29C-2 (2011) (providing for severance and gross receipts tax credits in order to offset certain Navajo taxes, which primarily focus on coal and coal extraction).

[187] *See* Washington v. Confederated Tribes, 447 U.S. 134 (1980) (holding that the Tribes have the power to tax transactions occurring on trust lands significantly involving the Tribe or its members).

[188] *See* Barnum, *supra* note 7, at 2–3 (describing the various tax and regulatory considerations associated with developments on tribal lands and advising developers to be diligent in examining all of the potential implications of their projects).

[189] This is a Capital Cost Allowance ("CCA"), a yearly deduction or depreciation on the cost of certain assets, and Class 43 covers most renewable energy production assets. Income Tax Act R.S.C., 1985, c. 1, § 66.1(6)(g.1) (Can.) (including Canadian renewable and conservation expenses in deductible Canadian exploration expenses, which covers Class 43); CANADA REVENUE AGENCY, BUSINESS AND PERSONAL INCOME 37 (2011), *available at* http://www.cra-arc.gc.ca/E/pub/tg/t4002/t4002-11e.pdf (describing the deductible machinery and equipment included in Class 43).

[190] The WPPI was focused on stimulating the development of wind resources by reducing the cost premium associated with wind power production through a combination of tax credits and incentive payments per kilowatt hour produced. *Opportunities for Canadian Stakeholders in the North American Large Wind Turbine Supply Chain*, INDUSTRY CANADA, http://www.ic.gc.ca/eic/site/wei-iee.nsf/eng/00164.html (last visited Mar. 26, 2012). While WPPI was suspended in 2007, wind turbines are still covered as a Canadian renewable and conservation expense, and deductible under Class 43. *See* Income Tax Regulations, C.R.C., 2012, c. 945, § 1219 (Can.) (allowing test wind turbines to be included in Canadian renewable and conservation expenses provided that it meets several requirements ranging from location restrictions to capacity); INDUSTRY CANADA, *supra* note 190 (describing WPPI in relation to American wind tax credits and the end of the program in 2007). CANADIAN RENEWABLE ENERGY ALLIANCE, FINANCING SOURCES AND MECHANISMS FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY 5 (2006), *available at* http://www.canrea.ca/pdf/CanREAFinancingPaper.pdf.

[191] *Id.*

[192] Indian Act, R.S.C. 1985, c. I-5, s. 87(1)(a)-(b) (2011).

This exception, however, is subject to change based on any Act of Parliament or the Act of the legislature of a Province.[193] While First Nations have been able to exert their exemption from the Harmonized Sales Tax in most provinces[194] and commercial properties have recently been found to be exempt from taxation provided that they are located on a First Nation reserve,[195] both of these developments are quite recent, and could quickly change in the future.

B. *Sovereign Immunity and Liability Concerns*

American Indian Tribes possess sovereign immunity, which prevents them from being sued in any court without the express consent of Congress or the Tribe itself,[196] even if a dispute resolution clause in the agreement designates a venue for litigation disputes.[197] This immunity, however, can be waived on a limited basis, and is normally done only in cases involving significant tribal economic development projects.[198] Tribes have been willing to commit to binding arbitration clauses in their agreements to give developers the much-needed assurances that their disputes will be settled in a mutually selected forum.[199] When seeking to bring renewable energy projects to the reservation or when examining a development proposal by a private investor, much of the responsibility will remain with the individual Tribes to ensure that mechanisms are in place to protect their sovereignty while working in tandem with federal agencies and other national policy-makers, including the DOE.[200] Furthermore, since Tribes do not waive their governmental regulatory authority when they enter into agreements with non-tribal organizations for the development of tribal lands and resources, Tribes must be cognizant of the need to amend their Tribal laws

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[193] *Id.* s. 87(1).

[194] *2009–2010 Annual Report: Resource Revenue Sharing*, ASSEMBLY OF FIRST NATIONS, http://64.26.129.156/article.asp?id=3718 (last visited Dec. 21, 2011).

[195] *See* Bastien Estate v. Canada, 2011 SCC 38, [2011] 2 S.C.R. 710 ("[T]he availability of the exemption does not depend on whether the property is integral to the life of the reserve or to the preservation of the traditional Indian way of life."); Dubé v. Canada, 2011 SCC 39, [2011] 2 S.C.R. 784 ("[T]axation exemption refers to an Indian's personal property situated on 'a' reserve and not to property on his or her 'own' reserve.").

[196] *See* Kiowa Tribe of Okla. v. Mfg. Techs., Inc., 523 U.S. 751, 754 (1998) ("[A]n Indian tribe is subject to suit only where Congress has authorized the suit or the tribe has waived its immunity.").

[197] *See* C & L Enters., Inc. v. Citizen Band Potawatomi Indian Tribe of Okla., 532 U.S. 411, 418 (2001) (finding that a contract between the Tribe and a non-tribal developer that contained an arbitration provision and a governing law provision waived the tribe's sovereign immunity by heavily relying on the tribe's consent to having the arbitral award confirmed in court).

[198] *See id.* at 418 (emphasizing that the waiver signed by the Tribes must be express and unequivocal in order to waive sovereign immunity).

[199] Barnum, *supra* note 7, at 2; *see also supra* notes 195–98 and accompanying text.

[200] *See generally* DEAN B. SUAGEE, RENEWABLE ENERGY POLICY PROJECT, RENEWABLE ENERGY IN INDIAN COUNTRY: OPTIONS FOR TRIBAL GOVERNMENTS (1998).

based on the projected impact on renewable energy projects.[201]

In Canada, there has been no statutory confirmation of First Nation's self-government or sovereignty despite the federal government's stance that Section 35 of the Canadian Constitution does contain an inherent right to self-government.[202] As a result, there are no blanket sovereignty issues for developers to account for when dealing with First Nation alternative energy generation facilities, although it is critical for them to pay attention to the specific, negotiated self-government agreements between Bands like the Nisgas and the federal and provincial governments.[203]

C. *Environmental Considerations*

In the United States, under the 1990 revision to the Clean Air Act, Tribes are recognized to have the authority to implement their own air pollution control programs, and, under the EPA's Tribal Authority Rule, they have the power to develop their own air quality management programs, write rules to reduce air pollution, and implement and enforce these rules in Indian Country.[204] State and local agencies remain responsible for fulfilling all Clean Air Act requirements, while Tribes are only permitted to develop and implement those parts of the Clean Air Act that are appropriate for their lands.[205]

In Canada, energy production and consumption currently account for eighty-one percent of the nation's greenhouse gas emissions, therefore it is anticipated that future environmental policy agenda will focus more heavily on the development of renewable electricity generation in an effort to combat this problem.[206] For now, environmental assessments play an extremely large role in the siting and approval of renewable energy generation facilities;[207] however, while these acts make reference to First

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[201] *See* Barnum, *supra* note 7, at 2 ("[A Tribe can] adopt new tribal laws or amend existing tribal laws to facilitate financing and other aspects of a solar energy project on tribal land.").

[202] Constitution Act, 1867, 31 Vict., c. 3 (U.K.); Constitution Act, 1982, *being* Schedule B to the Canada Act, 1982, c. 30 (U.K.); BRADFORD MORSE, COMPARATIVE ASSESSMENT OF INDIGENOUS PEOPLES IN QUEBEC, CANADA AND ABROAD 77 (2002), *available at* http://www.saic.gouv.qc.ca/publications/documents_inst_const/10-BradfordMorse.pdf.

[203] MORSE, *supra* note 202, at 77.

[204] *See* 42 U.S.C. § 7601(d) (2006) (authorizing the EPA to "treat Indian tribes as States," and affording the tribes the same opportunity as states to implement National Ambient Air Quality Standards within tribal jurisdictions); 63 Fed. Reg. 7271 (Feb. 12, 1998) (codified at 40 C.F.R. §§ 9, 35, 49, 50, & 81) (establishing the Tribal Authority Rule, outlining which portions of the Clean Air Act the Tribe may be authorized to be treated in the same manner as a state, delineating the requirements that Tribes must meet if they choose to seek such treatment, and identifying the Federal financial assistance available to Tribes interested in pursuing a Tribal Air Quality Program).

[205] 42 U.S.C. § 7601(d).

[206] WINGATE, *supra* note 99, at 3.

[207] The environmental assessment process provides a mechanism for reviewing major projects to assess their potential impacts and environmental effects. *Frequently Asked Questions,* CANADIAN

Nations, they often fail to prescribe clearly how First Nations should be involved in the process.[208] As a result, there has been an increased push for a greater involvement of First Nations in the review of environmental assessments, especially for proposed projects that "occur on their territories and . . . directly affect their rights and interests."[209] For now, unless the First Nation has a specific provision in a treaty with the government which allows them to pass their own laws concerning environmental assessments like the Nisga Band, their only real option is to voice their concerns via the detailed comment phase of the environmental assessment certificate application process.[210] To prevent any unpleasant surprises during this process that could delay construction, a prudent developer should actively engage potentially affected First Nations and attempt to address their concerns.

VIII. CONCLUSION

Renewable energy on reserves and reservations remains an exciting, emerging field, in which much research and policy development is still needed to ensure that Tribal and First Nation interests remain at the forefront of renewable energy projects on their lands. There has been a power push to develop renewable energy projects on reserves and reservations recently, and Tribes and First Nations must take the lead, using these opportunities to craft their economic and energy future. Continued support from the state, provincial, and federal governments will be crucial to their success. As the history of these governmental endeavors in both nations has shown, however, the current policy targeting renewable energy projects on Tribal and First Nations lands is still lacking. Among other things, it fails to reflect the realities of the limited financial and logistical resources available to many of the Tribes and First Nations, and does not effectively encourage Tribal and First Nation participation in new renewable energy projects. Governments, Tribes, and First Nations, therefore, must not be reluctant to look across the border to learn from the failures and successes of their neighbors—Canada, for example would greatly benefit from an overarching federal policy like ITEDSA, while a more state-focused program might be beneficial for American Indians as it

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ENVTL. ASSESSMENT AGENCY, http://www.ceaa.gc.ca/default.asp?lang=En&n=CE87904C-1#wsA3AB7524 (last updated Nov. 9, 2011).

[208] *See, e.g.*, Canadian Environmental Assessment Act, S.C. 1992, c. 37; British Columbia Environmental Assessment Act, S.B.C. 2002, c. 43 (Can.).

[209] ELMAR PLATE ET AL., BEST PRACTICES FOR FIRST NATION INVOLVEMENT IN ENVIRONMENTAL ASSESSMENT REVIEWS OF DEVELOPMENT PROJECTS IN BRITISH COLUMBIA 1 (2009), *available at* http://www.newrelationshiptrust.ca/downloads/environmental-assessments-report.pdf.

[210] *Id.* at 1–2, 6–10 (providing an overview of the provincial and federal environmental assessments).

tailors legislation to localized renewable energy issues. Despite the challenges presented by the current legal structures, it is undeniable that American Indians and First Nations possess the capacity, infrastructure, and geography to establish renewable power generation projects. Tribes and First Nations, then, must keep an eye to the future and continue to pursue active leadership roles in this field, as the new era of renewable energy is right around the corner and they are perfectly positioned to be at its vanguard.